

From wang!elf.wang.com!ucsd.edu!info-hams-relay Fri Mar 29 15:58:27 1991 remote
from tosspot
Received: by tosspot (1.64/waf)
via UUCP; Fri, 29 Mar 91 20:10:19 EST
for lee
Received: from somewhere by elf.wang.com
id aa08211; Fri, 29 Mar 91 15:58:26 GMT
Received: from ucsd.edu by relay1.UU.NET with SMTP
(5.61/UUNET-shadow-mx) id AA15599; Fri, 29 Mar 91 10:49:43 -0500
Received: by ucsd.edu; id AA17917
sendmail 5.64/UCSD-2.1-sun
Fri, 29 Mar 91 04:30:28 -0800 for brian
Received: by ucsd.edu; id AA17911
sendmail 5.64/UCSD-2.1-sun
Fri, 29 Mar 91 04:30:24 -0800 for /usr/lib/sendmail -oc -odb -oQ/var/spool/
lqueue -oi -finfo-hams-relay info-hams-list
Message-Id: <9103291230.AA17911@ucsd.edu>
Date: Fri, 29 Mar 91 04:30:22 PST
From: Info-Hams Mailing List and Newsgroup <info-hams-relay@ucsd.edu>
Reply-To: Info-Hams@ucsd.edu
Subject: Info-Hams Digest V91 #250
To: Info-Hams@ucsd.edu

Info-Hams Digest Fri, 29 Mar 91 Volume 91 : Issue 250

Today's Topics:

110>220 Transformers
ATV: AM or FM
Can you really learn code from tapes?
Feed lines
large 110->220 transformers (3 msgs)
Solar Flux Index & WWV
the Freeband below 10 meters (2 msgs)

Send Replies or notes for publication to: <Info-Hams@UCSD.Edu>
Send subscription requests to: <Info-Hams-REQUEST@UCSD.Edu>
Problems you can't solve otherwise to brian@ucsd.edu.

Archives of past issues of the Info-Hams Digest are available
(by FTP only) from UCSD.Edu in directory "mailarchives/info-hams".

We trust that readers are intelligent enough to realize that all text
herein consists of personal comments and does not represent the official
policies or positions of any party. Your mileage may vary. So there.

Date: 29 Mar 91 04:53:49 GMT

From: news-mail-gateway@ucsd.edu
Subject: 110>220 Transformers
To: info-hams@ucsd.edu

I don't know how far you are from Fort Drum. But if you were to go to that place that is cold and dark most of the time, there you would probably be able to find the transformers that you require. Most soldiers if they bring their transformers back from Europe keep them for a while and finally get tired of kicking them around and sell them (usually cheap). (that's tired not tire) although one might kick tires also come to think of it.

73 Roland KA2RC

Date: 29 Mar 91 00:50:13 GMT
From: usc!wuarhive!m.cs.uiuc.edu!ux1.cs.uiuc.edu!phil@ucsd.edu
Subject: ATV: AM or FM
To: info-hams@ucsd.edu

Some of the ATV equipment on the market for 23cm uses FM instead of AM or VSB as its modulation.

I'd like to know what the merits in doing this are. I note that the ARRL bandplan for 23cm includes 5 "channels" for ATV that are only 6 MHz wide.

One maker of FM equipment tells me that the picture is a lot less noisy and the bandwidth is the same as AM. I don't see how the picture can be a lot less noisy. FM gets its advantages when the deviation is high enough that noise will not (at a detectable level) modulate the phase of the carrier since the amplitude is constant after limiting.

Broadcast FM uses a deviation (peak) of 75 kHz for a signal bandpass that is 15 kHz. I don't know how pre-emphasis actually affects this. The spacing between stations in the same area is 800 kHz. I take this latter number to mean that at 400 kHz from the carrier center, the sidebands are weak enough, but still important enough, that sidebands from an equal level (or maybe just a little stronger?) signal 800 kHz away can affect the signal. This might be the point where filtering in the IF should cut off?

Translating the above to video results in (for a bandpass of 4.2 MHz for an NTSC color signal or a high quality B&W one) the equivalent deviation would be 21 MHz. The interstation spacing then becomes 224 MHz!

Of course we don't need THAT kind of picture fidelity, especially when we consider the limitations of NTSC video itself).

FM audio as we typically use it on VHF and UHF now days involves a

deviation of only (peak) 5 kHz, a bandpass of 3 kHz, and an interstation spacing of perhaps 60 kHz (based on close repeaters in a "dense" area). This gives us audio that, if strong enough, is relatively free of noise, but is readily interfered with by cochannel signals, and has the sound of "frying" when weak.

Translating this to video results in 7 MHz of deviation and an interstation spacing of about 84 MHz!

Yet I am told by the maker of the FM equipment that the signal takes no more room than an AM signal.

He does say that FM will produce lots of sidebands well away from the carrier. But he also says these sidebands are weak and not needed.

Filtering these sidebands off will be the next trick. If I use a nice linear final, there should be no problem; it would reproduce the envelope caused by the filtering and thus (reasonably) retain the lack of sidebands. However one of the reasons VSB ATV has been such a problem is that finals are generally not linear enough to keep the extra sidebands down. Now this filtered FM signal will not have so much of an envelope as the VSB one would, but it will have some. Post final filtering looks like it will be necessary and that means bigger and more expensive filters.

Another aspect of FM that bothers me a lot is the fact that, as the signal gets weaker and weaker, the quality of the resultant signal drops even faster. The point at which AM and FM equal out will probably be a noisy picture, but below that, FM declines very rapidly. Using techniques such as frame averaging on the demodulated video won't work, and applying such averaging to the IF before demodulation cannot work because the signal is not a truly coherent one, and may never be over some paths. With AM, there is at least a reasonable hope of using frame averaging if you have enough signal to synchronize to, or another means of synchronizing. One of the things I used to do when TV DXing was to catch stations when they were running test patterns, and photograph the screen showing the locked P1 to P2 picture for a long exposure like 1 to 60 seconds. The results were pictures that looked a lot like P4 to P5+.

I've always wondered what I might get if I tuned in an empty TV channel with a frame averager, synchronized it to a local station using network genlock all the time, and averaged several hours of the signal. Of course all the pictures would look like noise, but perhaps the sync pulses and some of the VITS would show up. VITS = Vertical Interval Test Signal, which contains some various signals like one line slices of the color bars and frequency test patterns, and some other specialized test signals.

A lot of these interesting things would be very difficult or impossible by using FM ATV, I do believe.

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/*****\
/ Phil Howard -- KA9WGN -- phil@ux1.cso.uiuc.edu      \
\ Lietuva laisva -- Brivu Latviju -- Eesti vabaks    /
\*****/
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Date: 27 Mar 91 13:28:23 GMT
From: usc!cs.utexas.edu!milano.sw.mcc.com!uudell!bigtex!texsun!newstop!male!
sunpix!gb@ucsd.edu
Subject: Can you really learn code from tapes?
To: info-hams@ucsd.edu

On the subject of leaning code from tapes. Has anyone had experience with the tapes from PASS systems? They claim to use "subliminals and hypnosis to speed you along". They have tapes for beginners and for advancing to high-speed. It sounds like a crock but they must be making some money to pay for all the advertising they do.

wa4fut

Date: 29 Mar 91 04:41:34 GMT
From: usc!samsung!uakari.prima.te.wisc.edu!caen!uwm.edu!ux1.cso.uiuc.edu!
bradley.bradley.edu!buhub!moodyblu@ucsd.edu
Subject: Feed lines
To: info-hams@ucsd.edu

Hello. As a new ham awaiting my license, I have been figuring out what I am going to do for an antenna. As a renter, I am limited, but I have decided to put up a dipole outside right now (I live in a duplex). However, I am trying to figure out how I am going to get the feedline into the house. My landlord will not let me make another hole in the wall, so I was thinking about bringing it in through the same hole the CATV line comes in. Will this create any problems with the cables so close?? Does anyone have any better ideas on how to get a feedline inside without making new holes in the wall?? Thanks..

Matt Weisberg

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=====
| Matt Weisberg             MILLIWAYS - Computers, Peripherals & Consulting |
| moodyblu@buhub.bradley.edu      Authorized Altima & D-Link Dealer      |
| Matt.Weisberg@f16.n120.z1.fidonet.org  Southfield, Michigan          |
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| MILLIWAYS BBS: (313) 553-9274

Voice: (313) 350-0503

|

Date: 28 Mar 91 21:11:32 GMT
From: epic!karn@bellcore.bellcore.com
Subject: large 110->220 transformers
To: info-hams@ucsd.edu

European power differs from American power in three ways: the voltage is different (220/240V vs 110/120V), the frequency (50 vs 60 Hz) and the plug (the UK has one type, the Continent another, and both are quite different from the North American style). Converting plugs is easy; converting voltage is harder (you usually need a transformer) and converting frequency is hardest of all (you need a motor-generator set or AC/DC/AC rectifier/inverter combination - impractical in most cases.)

Whether a given American appliance can be operated in Europe (with or without a transformer) depends very much on that appliance. Given the international nature of the appliance market, more and more units are built in a common "export version", with a switch for operation on either 110V or 220V. These appliances are by far the easiest to deal with, requiring only a plug adaptor (or new line cord) to mate with European outlets.

Much modern computer equipment (PCs, AC-powered disk drives and printers, but NOT modems and monitors) use switching power supplies, and many (if not most) of these supplies are readily operable on 220V 50 Hz. Just throw the line voltage switch and connect up a cord with the appropriate plug. Modern switching power supplies invariably rectify and filter the power line directly, so they are not at all sensitive to line frequency. The line rectifier is usually designed to operate as a full-wave bridge on a 220V line and as a voltage doubler on a 110V line, so all it takes is a SPST switch to select the mode of operation. This design seems to be universal in personal computers.

One of the characteristics of a switching power supply is the ability to operate efficiently over a wide input voltage range. This feature has been taken one step further in the development of 110/220V supplies that do not require manual switching; they are simply designed to operate over a 2:1 input voltage range. This design is becoming common in laptop computer power supplies.

Monitors and modems generally do not use switching supplies, so they have power transformers. If the unit has a 110/220V switch and is rated for 50/60 Hz operation, no problem. If the unit is for 110V

operation only it MAY be safely operable from a stepdown transformer; I say MAY because some transformers intended for 60 Hz operation may overheat when operated at 50 Hz. The rest of the unit probably won't care about the line frequency because the output of the power transformer is rectified and filtered to DC anyway. (If the filter caps are marginal, you might have increased hum problems at 50 Hz).

TV sets generally do not have power transformers (they rectify the line directly), so they should operate okay from 110V 50 Hz. Unfortunately, US TV sets use the NTSC standard while television in Europe is either PAL or SECAM, so your set wouldn't be of much use over there except for playing back NTSC tapes on your NTSC VCR.

Stereos, CD players and most ham gear are similar to computer monitors in that they usually have power transformers; the same considerations apply regarding the change in line frequency.

Hair dryers, incandescent lamps, brush-type motor power tools, etc, can be operated off 220V through those small "travel converters" that are simply high power rectifiers. They produce a strong DC component, but that will not bother these appliances. NB! Do NOT use one of these converters on anything that has a power transformer! (Many travel kits have two adapters, a 1KW diode model for the aforementioned appliances and a 50W model that uses a step down transformer. When in doubt, always use the transformer model if it can handle the required load.)

Alarm clocks or other devices with synchronous motors (e.g., turntables and analog tape decks) will NOT operate properly off European power even with a transformer, as their motor speeds are determined by the power frequency. (This may not be true for ALL alarm clocks, turntables and tape decks as some may have internal crystal clock references, but without knowing the design you can't be sure.) Note that CD players are not a problem here as their internals are always driven from a crystal reference, not the AC power line.

So the bottom line is that it's not easy to make generalizations about how easy it is to operate a given US appliance in Europe. Unless it was clearly designed to operate off either 120 or 240V power, you can't really tell for sure without a look at the schematic.

Phil

Date: 29 Mar 91 00:04:13 GMT
From: adobe!burgund!burgett@decwrl.dec.com
Subject: large 110->220 transformers
To: info-hams@ucsd.edu

In article <1991Mar28.211132.3521@bellcore.bellcore.com> karn@epic.bellcore.com
(Phil R. Karn) writes:

[... much good and useful info deleted for brevity....]

Alarm clocks or other devices with synchronous motors (e.g.,
turntables and analog tape decks) will NOT operate properly off
European power even with a transformer, as their motor speeds are
determined by the power frequency. (This may not be true for ALL
alarm clocks, turntables and tape decks as some may have internal
crystal clock references, but without knowing the design you can't be
sure.) Note that CD players are not a problem here as their internals
are always driven from a crystal reference, not the AC power line.

The key here, is if it has a motor, ac motors will run slow, dc motors will
run fine. A crystal reference isn't always necessary. Digital clocks (which
don't even have a motor) will often run slow, but if you have a spec sheet on
the clock chip used, it's usually simple a matter of adding or lifting ground
from a particular pin to change between 50 and 60 Hz.

Good post.... mike burgett burgett@adobe.com

Date: 29 Mar 91 02:10:33 GMT
From: swrinde!cs.utexas.edu!asuvax!ncar!news.miami.edu!mthvax!wb8foz@ucsd.edu
Subject: large 110->220 transformers
To: info-hams@ucsd.edu

If you want to buy large 110--->220 v xfmrs, Try Electronic
Surplus, Inc 216-621-1052. I noticed several in their latest
catalog.

Note that they ARE heavy, and no transformer solves the 50/60 hz
problem.

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A host is a host from coast to coast.....wb8foz@mthvax.cs.miami.edu
& no one will talk to a host that's close.....(305) 255-RTFM
Unless the host (that isn't close).....pob 570-335
is busy, hung or dead.....33257-0335

Date: 28 Mar 91 08:38:56 GMT
From: swrinde!cs.utexas.edu!execu!sequoia!memqa!spiff.soe!gomer@ucsd.edu
Subject: Solar Flux Index & WWV

To: info-hams@ucsd.edu

Could someone please start posting the Solar Flux Index reports from WWV again. Dave Bray, K2LMG, and I are going to try to keep a database of the trend daily. Some days (yesterday being a prime example) neither of us are able to pick WWV out from the mess. Also if someone has a set for any time period and would be willing to mail it to us that would also be appreciated.

'73!

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Paul Kronenwetter - N2KIQ          | Amateur Packet: N2KIQ@KA2JXI.NY.USA
kronenpj@clutx.clarkson.edu        | N2KIQ@BBSJXI.NEDA.USA
kronenpj@clutx.bitnet              | Snail Mail: Clarkson University
Voice:315-268-4134|St Lawrence Cty: | Box 6942
Buffalo: 146.910- |444.15+|146.910- | Potsdam, NY
146.580| 444.000+ |\\\/\\\/\\146.580 | 14699-6942
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-Archangel
manninfj@clutx.clarkson.edu

The opinions expressed herein are my own. In the near future they will become facts, and in an eon or so they will become law.

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Date: 29 Mar 91 01:17:13 GMT
From: epic!karn@bellcore.bellcore.com
Subject: the Freeband below 10 meters
To: info-hams@ucsd.edu
```

In article <161@decabo.enet.dec.com>, brewer@anarky.enet.dec.com writes:

```
|> I hear that the FCC is currently in the midst of an enforcement
|> blitz on commercial tower painting enforcement. Seriously!
|>
|> I guess they stand better chance of catching those errant towers
|> as they are not nearly as fast-moving as those freebanders!
```

I know it may seem amusing, but tower painting (and lighting) is a serious aviation safety issue. I worked at a PBS UHF TV station in the middle 1970s, and when we had extended power failures at night a very high priority was to get the backup generator powering the lights on our 700' tower.

Seen in this "light" I can easily see why the FCC considers tower lighting and painting to be more important than catching a bunch of

freebanders who are probably not bothering anything important anyway.
(If there was anything important in the range 27.5-28.0 MHz, I'm sure
they've long since moved away. 1/2 :-))

Phil

Date: 29 Mar 91 05:43:43 GMT
From: usc!rpi!luigi@ucsd.edu
Subject: the Freeband below 10 meters
To: info-hams@ucsd.edu

In article <1991Mar29.011713.10365@bellcore.bellcore.com>
karn@thumper.bellcore.com writes:

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>serious aviation safety issue. I worked at a PBS UHF TV station in the
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>

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>freebanders who are probably not bothering anything important anyway.
>(If there was anything important in the range 27.5-28.0 MHz, I'm sure
>they've long since moved away. 1/2 :-))

>

>Phil

I agree that tower visibility is an important issue, but should it be an FCC
problem. With my limited broadcast radio experience (a few years at WRPI,
home to a 600+ foot tower) I always remember that whenever power failed or
a light blew on the tower, it was the FAA that we called to warn, and they
were the ones on our back about the tower.

I am not saying you are wrong, but in these days of pennypinching at the FCC,
you would think they would say to the flyboys "Here's the list of towers,
you go look at em!"

Luigi Giasi
Luigi@rpi.edu

Date: 28 Mar 91 23:13:47 GMT
From: pa.dec.com!shlump.nac.dec.com!koning.enet.dec.com@decwrl.dec.com
To: info-hams@ucsd.edu

References <gbwV9z_00jVM4FsFs9@andrew.cmu.edu>,
<1991Mar28.190723.9681@athena.cs.uga.edu>,
<1991Mar28.211132.3521@bellcore.bellcore.com>
Reply-To : koning@koning.enet.dec.com
Subject : Re: large 110->220 transformers

|>
|>European power differs from American power in three ways: the voltage
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|>easy; converting voltage is harder (you usually need a transformer)
|>and converting frequency is hardest of all (you need a motor-generator
|>set or AC/DC/AC rectifier/inverter combination - impractical in most
|>cases.)
|>...

Actually, the story for plugs is a bit worse. If you don't need a ground,
then indeed there are only two types to worry about. But you probably
do want to ground stuff. In that case, there are a whole lot more
variants: the continent uses a bunch of different locations for the
grounding pin. According to my reference, the distinct cases are
(1) Switzerland, (2) Italy, (3) Denmark, (4) Belgium/France, (5) the others.
I've seen plugs that handle both (4) and (5), but the remaining cases
each need their own plug.

paul

End of Info-Hams Digest
